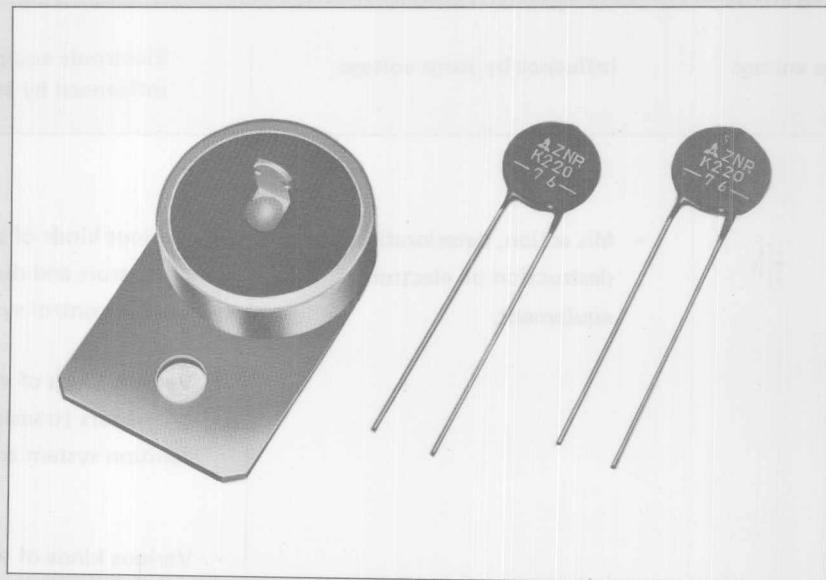




RZ-CM01-1

Low Voltage "ZNR®"

Transient/Surge Absorber for Automobile M Series



Features

- *Excellent clamping voltage characteristics*
- *Large withstanding surge energy (20 ~ 200 joules)*
- *Quick response to fast-rise surges*

Low Voltage "ZNR" Transient/Surge Absorber for the Automobile M Series

More and more semi-conductive electronic components are used in the automobile, which could be easily damaged by surge voltage. The Zenor diode and CR absorber have been used as a surge absorber, but our low voltage ZNR surge absorber (22V) is recommendable from the viewpoint of safety and reliability.

Overseas Patents

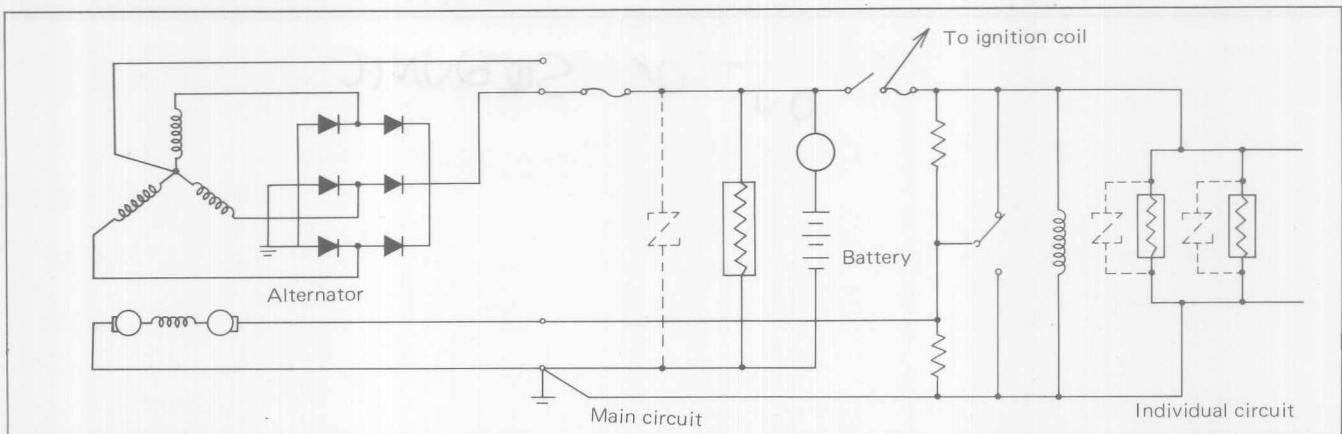
- 204 patents, registered or pending in the USA, Great Britain, W. Germany, France, Holland, Canada, Italy, Australia, Taiwan, Sweden and Ireland.

Applications

Generating origin of surge voltage on automobiles

Generating origin of surge voltage	Influence by surge voltage	Electronic equipment to be influenced by surge voltage
<ul style="list-style-type: none"> • Alternator • Starter • Ignition • Induced load switching charge 	<ul style="list-style-type: none"> • Mis action, deterioration and destruction of electronic equipment. 	<ul style="list-style-type: none"> • Various kinds of sensors, transistors and diodes used in control systems. • Various kinds of switching transistors (transistorized ignition system and fuel jet pump) • Various kinds of semi-conductive rectifiers • Filaments of lamps.
<ul style="list-style-type: none"> • Radiant electric wave by H.T. cord and plug spark • Static electricity of tires on braking 	<ul style="list-style-type: none"> • Origin of noise for radio TV and stereo 	<ul style="list-style-type: none"> • Car radio • Car stereo • Car TV

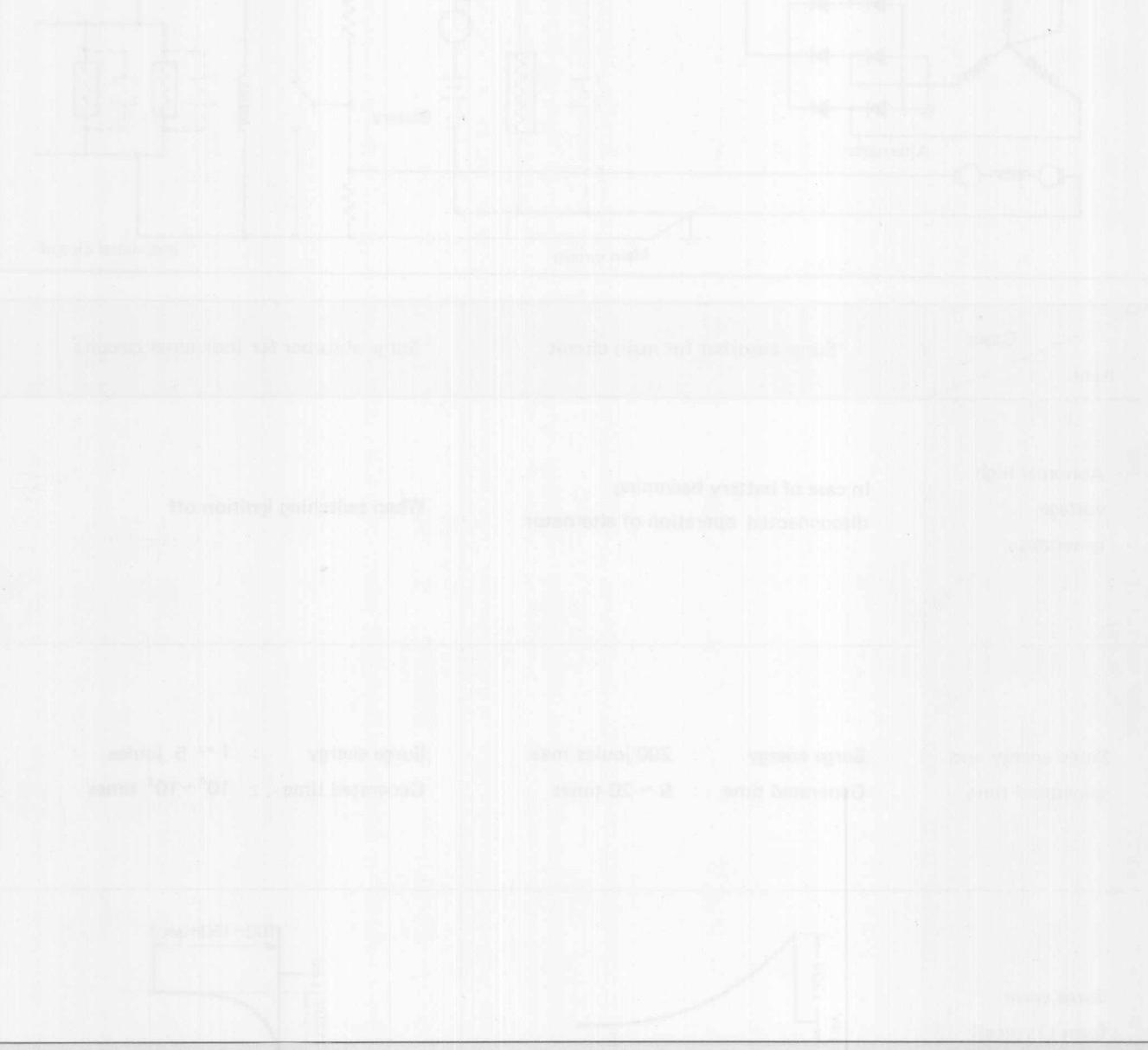
Circuit in which abnormal high voltage generates



Item \ Cases	Surge absorber for main circuit	Surge absorber for individual circuits
Abnormal high voltage generates	In case of battery becoming disconnected operation of alternator	When switching ignition off
Surge energy and generated time	Surge energy : 200 joules max. Generated time : 5 ~ 20 times	Surge energy : 1 ~ 5 joules Generated time : $10^4 \sim 10^5$ times
Surge wave form (Typical)		
Fixing position of surge absorber	Surge absorber is fixed near the outside of the alternator and protects the load against surge from the alternator	Surge absorber is fixed to power supplying part in various kinds of equipment and protects circuits and components

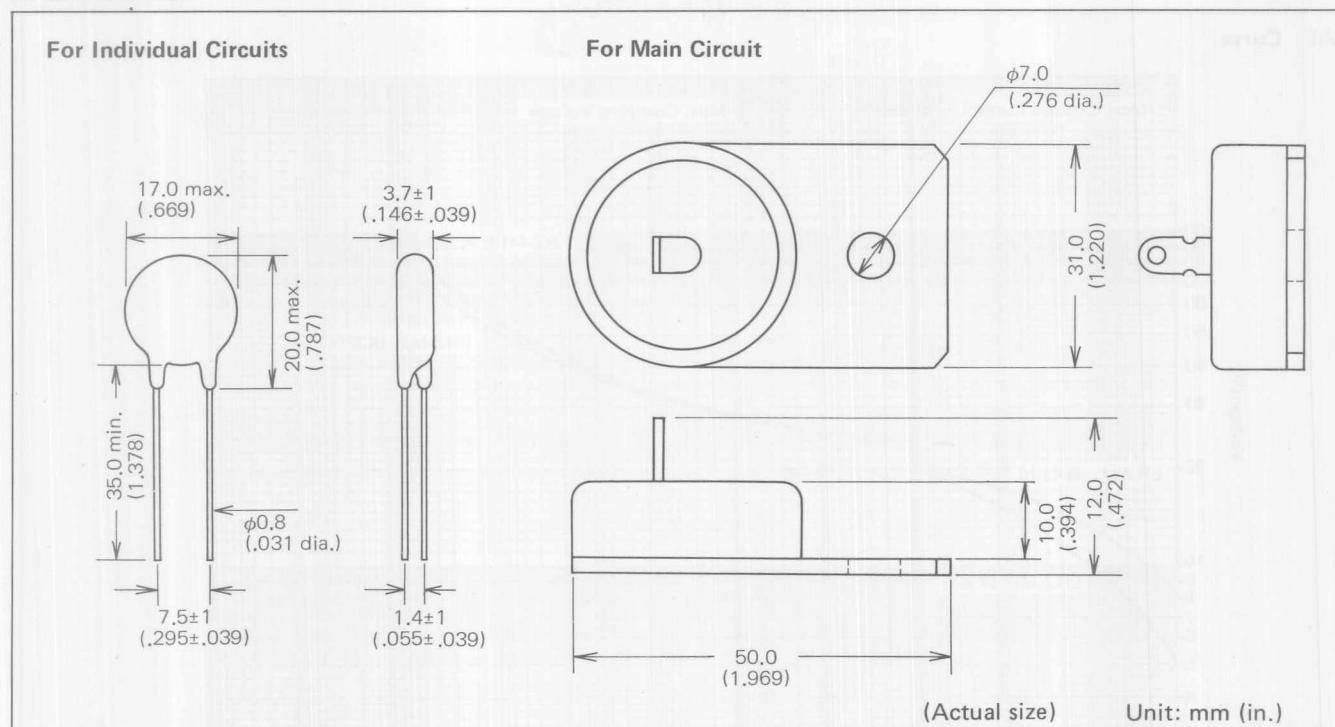
MEMO

OVR OR SEQUNIC



National and Panasonic are the brandnames of Matsushita Electric

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Kadoma 1006, Kadoma Osaka Japan	P.O.Box 288, Osaka Central	F.R. Germany
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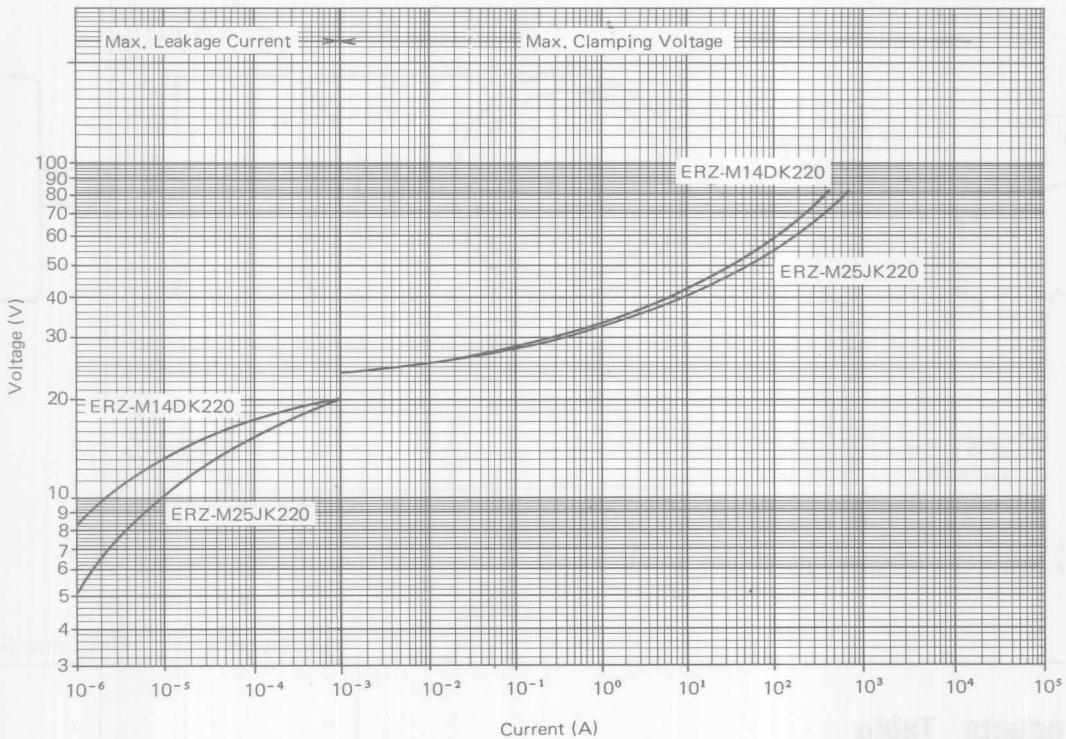
Dimensions**Standard Products Table**

Item	Part No.		ERZ-M14DK220	ERZ-M25JK220
Varistor Voltage	1mA DC	V ₁ mA (V)	22 (20 ~ 24)	22 (20 ~ 24)
Maximum Allowable Voltage	Continuous	DC (V)	16	16
	Shortly	DC (V) — Minutes	24V — 10 Minutes	24V — 10 Minutes
Maximum Clamping Voltage		(V)	V10A < 43	V50A < 50
Withstanding Surge Energy		Joules	20 (at 20m sec.)	200 (at 200m sec.)
Typical Capacitance		pF (at 1 kHz)	15,000	40,000
Remarks		For Individual Circuits	For Main Circuit (TENTATIVE)	

Note: Temperature Range

Operating temperature range. -40°C ~ + 85°C (-40°F ~ +185°F)

Storage temperature range. -40°C ~ +125°C (-40°F ~ +257°F)

V-I Curve**Part Number Code**

E R Z - M	1 4	D	K	2 2 0	-	Suffix																
Common Code	Element Size	Type	Tolerance	V_1 mA																		
ERZ-M "ZNR®" M Series	<table border="1"> <tr> <td>14</td> <td>$\phi 14\text{mm (.551 dia.)}$</td> </tr> <tr> <td>20</td> <td>$\phi 20\text{mm (.787 dia.)}$</td> </tr> <tr> <td>25</td> <td>$\phi 25\text{mm (.984 dia.)}$</td> </tr> </table>	14	$\phi 14\text{mm (.551 dia.)}$	20	$\phi 20\text{mm (.787 dia.)}$	25	$\phi 25\text{mm (.984 dia.)}$	<table border="1"> <tr> <td>D</td> <td>Type D</td> </tr> <tr> <td>J</td> <td>Type J (High Energy)</td> </tr> </table>	D	Type D	J	Type J (High Energy)	<table border="1"> <tr> <td>J</td> <td>$\pm 5\%$</td> </tr> <tr> <td>K</td> <td>$\pm 10\%$</td> </tr> <tr> <td>L</td> <td>$\pm 15\%$</td> </tr> </table>	J	$\pm 5\%$	K	$\pm 10\%$	L	$\pm 15\%$		<p>The first two digits are significant figures of voltage and the third denotes number of zeros following</p>	
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